TOWN OF LOOMIS
Building Department
3665 Taylor Road
Loomis, CA 95650
(916) 652-1840 fax (916) 652-1847

RESIDENTIAL PHOTOVOLTAIC (PV) PACKET

Contents of packet:

Photovoltaic Checklist (2 pages - complete and submit with permit)
Sample One-Line Diagram for PV System
Sample Site Diagram
Solar Panel Dead Weight Loading Calculation (complete and submit with permit)
Verification of Wire Size for PV System Calculation form (complete and submit with permit)
CEC Table 310.16 (included for reference)
Town of Loomis Signage Requirements

RESIDENTIAL PHOTOVOLTAIC (PV) PACKET

ALL PV Project Applicants:
The Town of Loomis requires all PV systems to comply with the requirements of:

REQUIRED APPLICATIONS:

- Town of Loomis Building Permit – SUBMITTAL REQUIRED

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- Verification of Wire Size for PV system Calculation form (complete and submit with permit)
- CEC Table 310.16 (included for reference)
- Town of Loomis Solar Signage Requirements

If you have any questions regarding your PV system permit, please call the building department at (916) 652-1840.

Residential Photovoltaic (PV) Checklist

Based on the **2013** California Electrical Code (CEC) Article 690,
Town of Loomis Building and Fire Departments

☐ Residential PV system shall be installed in accordance with the current adopted edition of the CEC Article 690 and any other applicable articles or codes adopted by this jurisdiction.

Simple plot plan showing:

_____Lot lines
_____ Structure locations
_____Main service panel location
_____PV module array configuration shown on a roof layout (or lot if ground mounted system)
_____% of coverage of roof area (If more than 50% a review by the fire department is required)
_____Distance from ridge to array(s) - (minimum of 3' required by Fire)
_____ Distance from valley/ hip to array(s) - (minimum of 1.5' by Fire)
_____ PV equipment locations

☐ Roof Information (for roof mounted systems):

_____ Type of roof structure and slope. If rafters, provide size and spacing of existing roof framing members
_____ Existing roofing material

☐ PV Equipment Manufacturer's Specifications: Provide cut sheets on all components including but not limited to those shown below; including make, model, listing, size, weight, etc. <u>Highlight project specific information on the cut sheets</u>

_____PV modules
_____ Inverter
_____ Mounting System (if using substitution parts to any listed/certified system, additional engineering shall be required addressing the withdrawal and lateral capacities)
_____ Disconnects
_____ Combiner Box (if used)

☐ Inverter:

_____Model number
_____ Integrated disconnect - Per *CEC 690.17
_____ Visible, external A/C disconnect at main service

☐ *Mounting System for Panel Installation:* <u>*Highlight project specific information on the cut sheets*</u>

_____Indicate the style, diameter, length of embedment of bolts into framing members and location of attachments
_____ Indicate number of bolts per panel
_____ Provide mounting details and certified engineering for listed mounting installation
_____Complete "Solar Panel Dead Weight Loading Calculation" form
_____ If ground mounted, provide details for the foundation Residential PV Checklist 2 of 2

☐ Photovoltaic Modules:

_____Open-circuit voltage (Voc) from listed cut sheet
_____ Maximum system voltage from listed cut sheet
_____ Short-circuit current (Isc) from listed cut sheet
_____ Maximum fuse rating from listed cut sheet
_____ Maximum power- panel wattage from listed cut sheet

☐ Electrical Schematic:

_____System inter-tie with utility company or stand alone

_____ Indicate the system KW rating

_____ Indicate if the system has battery backup

_____ Single line drawing of electrical installation which includes:

_____ Array - detailed

_____PV power source short circuit rating

_____ Conductor size and type

_____ Conductor locations and runs

_____ Equipment bonding points and sizes – Per *CEC 250.122

_____ Inverter location

_____ AC & DC disconnect locations – Per *CEC 690.14 (5)

_____ Batteries; number, size and locations (if applicable)

_____Point of connect to existing electrical service panel

_____size and number of electrical service meters – Per *CEC 690.64(B)(2) exception

_____Location of required signage

☐ Proper Signage and Labeling:

Indicate system type below and show location of each required sign on one line diagram (see electrical):

☐ **SINGLE PV ARRAY SYSTEM**

☐ **PV ARRAY SYSTEM W/ BATTERY BACKUP**

☐ **MULTIPLE PV ARRAY SYSTEMS**

☐ Fees and Plan Review Information:

Fees are based on Contract Valuation (Example)

Contract Valuation	$50,000.00			
Plan Check	$50,000.00	X	.0025=	$125.00
Building Permit	$50,000.00	X	.0045=	$225.00
SMIP	$50,000.00	X	.0001=	$ 5.00
Building Standards fee	$1 for each $25,000 of value	=		$ 2.00
		TOTAL =		$357.00

*CEC 690.17 - Switch or Circuit Breaker. The disconnecting means for ungrounded conductors shall consist of a manually operable switch (es) or circuit breaker(s) complying with all of the following requirements:

(1) Located where readily accessible

(2) Externally operable without exposing the operator to contact with live parts

(3) Plainly indicating whether in the open or closed position

(4) Having an interrupting rating sufficient for the nominal circuit voltage and the current that is available at the line terminals of the equipment.

*CEC 250.122 – Size of Equipment Grounding Conductors. Copper, aluminum, or copper-clad aluminum equipment grounding conductors of the wire type shall not be smaller than shown in Table 250.122 but shall not be required to be larger than the circuit conductors supplying the equipment.

*CEC 690.46(C) – Grounding for AC/DC Systems.

*CEC 690.14 (5) – Grouping. The photovoltaic system disconnecting means shall be grouped with other disconnecting means for the system to comply with 690.14(C)(4). A Photovoltaic disconnecting means shall not be required at the photovoltaic module or array location.

*CEC 690.64(B)(2) exception – Load Side. A photovoltaic power source shall be permitted to be connected to the load side of the service disconnecting means of the other source(s) at any distribution equipment on the premises, provided that (exception) the sum of the ampere ratings of the overcurrent devices shall not exceed 120% of the rating of the busbar or conductor.